

REMARKS

I. Claim Rejections - 35 U.S.C. § 103(a)

Claims 1, 4, 5, 7-13, 15, 18, 19, and 21-27 were rejected pursuant to 35 U.S.C. § 103(a) as being unpatentable over Schlotterer et al. (U.S. Patent No. 5,844,781) in view of Powell (U.S. Patent No. 6,931,723).

Amended claim 1 recites a printed circuit board having at least first and second layers without a continuous opening such that the printed circuit board is a liquid-tight closure that prevents a liquid from flowing into the opening.

Neither of the cited references disclose at least first and second layers that have no continuous openings such that the printed circuit board is a liquid-tight closure that prevents a liquid from flowing into the opening.

Schlotterer et al. fail to disclose a printed circuit board having at least first and second layers without a continuous opening such that the printed circuit board is a liquid-tight closure that prevents a liquid from flowing into the opening. Schlotterer et al. disclose continuous apertures 51 in the printed circuit board 23. Schlotterer et al. disclose that the “printed circuit board 23 also provides connections 45 between relay leads 47 and external leads 49. As seen more clearly in FIGS. 3 and 4A-C and 5A-C, the electrical connections 45 include plated through apertures 51 in the printed circuit board 23” (col. 3, lines 31 – 36, emphasis added). The through apertures 51 are continuous openings. Schlotterer et al. use solder to connect leads through the plated through apertures 51. Schlotterer et al. disclose that the solder connection may be air tight and water tight (col. 3, lines 49 – 50). However, one skilled in the art would understand that using solder to fill a continuous opening in the first and second layers is materially different than providing a first and second layer without a continuous opening. Soldering the leads requires additional work and also does not ensure that there are no continuous openings. Schlotterer et al. do not disclose a printed circuit board having at least first and second layers without a continuous opening such that the printed circuit board is a liquid-tight closure that prevents a liquid from flowing into the opening.

Powell fail to disclose a printed circuit board having at least first and second layers without a continuous opening such that the printed circuit board is a liquid-tight closure that

prevents a liquid from flowing into the opening. Powell discloses an electronic interconnect structure being usable as a printed wiring board (See, e.g., col. 2, lines 63 – 65). The electronic interconnect structure increases circuit density (See, e.g., col. 3, lines 9-21). However, Powell does not disclose that the electronic interconnect structure is made without a continuous opening such that the electronic interconnect structure is a liquid-tight closure that prevents a liquid from flowing into the opening.

The combination of Schlotterer et al. and Powell also fail to disclose the claimed subject matter because neither of the cited references disclose the claimed subject matter.

Therefore, amended claim 1 is allowable over the cited references because Schlotterer et al. and Powell, either alone or in combination, fail to disclose the claimed subject matter.

Dependent claims 4-5 and 7-14 depend from allowable claim 1 and are allowable for at least this reason. Further limitations of the dependent claims are allowable over the cited references.

Amended independent claim 15 recites that a printed circuit board has no continuous opening such that the printed circuit board is a liquid-tight closure that prevents a liquid from flowing into the opening. As discussed above, Schlotterer et al. disclose a printed circuit board 23 with apertures and Powell fail to disclose a electronic interconnect structure that has no continuous openings such that the electronic interconnect structure is a liquid-tight closure that prevents a liquid from flowing into the opening. Therefore, claim 15 is allowable over the cited references.

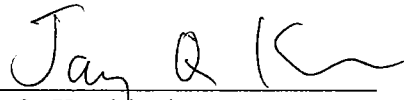
Dependent claims 18-19 and 21-28 depend from allowable claim 15 and are allowable for at least this reason.

Conclusion

For at least the reasons presented above, the Applicant respectfully submits that the pending claims are in condition for allowance.

The Examiner is respectfully requested to contact the undersigned in the event that a telephone interview would expedite consideration of the application.

Respectfully submitted,


Jay Q. Knobloch
Registration No. 57,347
Agent for Applicant

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200